KOLESNIKOV, V.A., doktor sel'skokhozyaystvennykh nauk, prof.

Prospective development of fruit culture. Izv.TSKhA no.2:45-56 '59. (MIRA 12:8)

(Fruit culture)

BREZHNEV, D.D., akad., red.; VLASYUK, I.A., akad., red.; GUSHCHIN, M.Yu., kand. sel'khoz. nauk, red.; YEVTUSHENKO, A.F., kand. sel'khoz. nauk, red.; KATAR'YAN, T.G., kand. biol. nauk, red.; KOLESNIKOV, V.A., doktor sel'khoz. nauk, red.; LAPIN, V.K., kand. biolog. nauk, red.; RYABOV, I.N., kand. sel'khoz. nauk, red.; ZHILYAKOVA, O., red. izd-va; GLIKMAN, N., red. izd-va; ISUPOVA, N., tekhn. red.

[Development of fruit culture and viticulture in the Crimea] Razvitie sadovodstva i vinogradarstva Kryma; trudy plenuma, provedennogo sovmestno s Ukrainskoi akad. sel'skokhoziaistvennykh nauk, 20-24 maia 1958 goda (Simferopol'). Pod obshchei red. D.D.Brezhneva i I.A.Vlasiuka. Simferopol', Krymizdat, 1959. 467 p. (MIRA 15:5)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni V.I.Lenina. Sektsiya sadovodstva, vinogradarstva i subtropicheskikh kul'tur.
(Crimea—Fruit culture) (Crimea—Viticulture)

KOLESNIKOV, Venedikt Andreyevich, prof., doktor sel'skokhoz.nauk;
KATSNEL'SON, S.M., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Further expansion of fruit culture] Za dal'neishee razvitie plodovodstva. Moskva, Izd-vo "Znanie," 1960. 30 p. (Vsesoiuznoe ob-vo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, Sel'skoe khoziaistvo, no.6). (MIRA 13:4)
(Fruit culture)

FEDOROV, V.A., sadoved-lyubitel' (g.Lokhvitsa, Poltavskaya oblast');
KOLESNIKOV, V.A., prof.

"Nonblooming" apple trees. Priroda 49 no.5:122-123 My '60. (MIRA 13:5)

1. Moskovskaya sel'skokhozyaystvennaya akademiya im. K.A. Timiryazeva (for Kolesnikov).
(Apple)

KOLESNIKOV, V.A., doktor sel'skokhozyaystvennykh nauk, prof.

Method of "samples" and its application to the study of the root system of fruits and berries. Izv. TSKhA no.4:55-61 '61. (MIRA 14:9)

(Roots (Botany)) (Berries) (Fruit)

KOLESNIKOV, V.A.

Practice of launching the Pavlovskaya Sugar Factory. Sakh. prom. 35 no.12:34-35 D '61. (MIRA 15:1)

1. Pavlovskiy sakharnyy zavod Krasnodarskogo kraya. (Pavlovskaya (Krasnodar Territory))--Sugar industry)

KOLESNIKOV, V.A., doktor sel'khoz.nauk, prof.; SERGEEV, V.I., red.; PEVZNER, V.I., tekhn. red.

[Root systems of fruit and berry plants and methods for studying them] Kornevaia sistema plodovykh i iagodnykh rastenii i metody ee izucheniia. Moskva, Sel'khozizdat, 1962. 490 p. (MIRA 15:7)
(Roots (Botany)) (Fruit culture—Research)

KOLESNIKOV, V. A.

Filtration of heavy sirups. Sakh. prom. 36 no.10:26-27 O '62. (MIRA 15:10)

1. Ust'-Labinskiy sakharnyy zavod.

Sugar manufacture) (Filters and filtration)

KOLESNIKOV, V.A., prof., doktor sel'skokhozyaystvennykh nauk

Prospects and ways for the development of fruit culture in the light of the decisions of the 22d Congress of the CPSU. Izv. TSKHA no.3:83-95 '62. (MIRA 15:9)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni Lenina.
(Fruit culture)

KOLESNIKOV, V.A., prof.

Look for better varieties. IUn. nat. no.9:20 S '62. (MIRA 16:5)

1. Kafedra plodovodstva Sel'skokhozyaystvennoy akademii imeni Timiryazeva. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk.
(Fruit culture)

KOLESNIKOV, V.A., prof.; PALKEVI, I., kand.sel'skokhoz. nauk

Growth and developmental phases of aerial parts and the root system of apple as related to the dynamics of uptake and distribution of tagged phosphorus [with summary in English]. Izv. TSKHA no.3:132-147 '63. (MIRA 16:9)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni Lenina (for Kolesnikov).
(Plants— Assimilation) (Phosphorus isotopes) (Apple)

KOLESNIKOV, V.A.

Extent and distribution of the apple root system as related to various factors. Izv. TSKHA no.2:85-100 '63. (MIRA 16:10)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni Lenina.

KOLESNIKOV, V. A. prof. dr.

Growth dynamics of the root system and the above-ground parts of orchard plants and their fruiting. Postepy nauk roln 11 no. 1:127-138 Ja-F '64.

1. Corresponding member of the Lenin All-Union Academy of Agriculture.

KOLESNIKOV, V.A., prof., doktor sel'skokhozyaystvennykh nauk

Horticultural Experiment Station of the Timiriazev Agricultural Academy and its role in the development of Soviet fruit culture. Izv. TSKHA no.2:218-238 '65. (MIRA 18:9)

1. Kafedra plodovodstva Moskovskoy akademii sel'skokhozyaystvennykh nauk imeni Timiryazeva.

ACC NR: AP7003488 (N) SOURCE CODE: UR/0394/66/004/006/0027/0030

16

AUTHOR: Kolesnikov, V. A.

ORG: Scientific Research Institute of Vegetable Growing (Nauchno-issledovatel'skiy institut ovoshchnogo khozyaystva)

TITLE: Herbicidal activity of propazine and alipur, depending on the method of introduction into the soil

SOURCE: Khimiya v sel'skom khozyaystve, v. 4, no. 6, 1966, 27-30

TOPIC TAGS: weed killer, agriculture crop

ABSTRACT: The phytotoxic action of propazine and alipur on oats was found in laboratory experiments to depend substantially upon the method of their introduction into the soil. In the case of introduction into the 0-8 cm soil layer, the toxicity of propazine was manifested more strongly during the first period of planting of the oats, i.e., on the second day after treatment with the herbicide. In the second period of planting, 31 days after application of the preparation, the toxicity of propazine was the same both when mixed with the 0-8 cm layer of soil and when applied at a depth of 4 cm from the surface of the soil. During subsequent periods of planting, on the 65th and 94th days after application, the toxicity of propazine was appreciably reduced in the case of the first method of application, as a result of its more pronounced

Card 1/2 UDC: 632.954

L 10788-67

ACC NR: AP7003488

inactivation, while in the case of application in a layer at a depth of 4 cm, its toxicity was increased. The toxic action of alipur on oats was more pronounced in the first method of application at all periods of planting. Depression of the growth of carrots by propazine and of beets by alipur was observed to a greater degree when these preparations were applied at a depth of 4 cm, with the exception of the first two weeks, in which the appearance of carrot sprouts was more inhibited in the first method of application. Orig. art. has: 3 figures and 1 table. [JPRS: 38,970]

SUB CODE: 06, 02 / SUBM DATE: 19Jul65 / ORIG REF: 005 / OTH REF: 002

Card 2/2

ACC NR: AP6035700 (A) SOURCE CODE: UR/0413/66/000/019/0046/0046

AUTHOR: Manakin, B. A.; Kolesnikov, V. A.

ORG: none

TITLE: Electrolyte for iodo-silver galvanic cell. Class 21, No. 186536

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 46

TOPIC TAGS: electrolyte, galvanic cell, electrolytic cell

ABSTRACT: An Author Certificate has been issued for an electrolyte consisting of the complex $Ag_{1.14}Cu_{0.86}HgJ_4$ (mercuoiodide complex with silver and copper). The electrolyte is intended for use in an iodo-silver galvanic cell, in order to reduce its operating temperature and to improve its electrical characteristics.

SUB CODE: 10, 09/ SUBM DATE: 25Oct65

Card 1/1 UDC: 621.352.3.035.444

ACC NR: AP6035919 SOURCE CODE: UR/0413/66/000/020/0169/0170

INVENTOR: Kolesnikov, V. A.

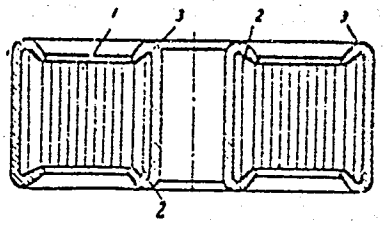
ORG: None

TITLE: A shock absorber. Class 47, No. 187452 [announced by the Kuybyshev Aviation Institute (Kuybyshevskiy aviatsionnyy institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 169-170

TOPIC TAGS: shock absorber, frequency characteristic

ABSTRACT: This Author's Certificate introduces a shock absorber containing two concentric sleeves and a damping element in the form of a ring made from an unwoven wire material located between the sleeves. The unit is designed for stable frequency response by making the ring with internal flanges on the ends into which the edges of the sleeves are pressed for rigid connection.



1--ring; 2--internal flanges; 3--sleeves

SUB CODE: 13/ SUBM DATE: 17Jun65

Card 1/1 UDC: 62-567.14

VOLODIN, N.S.; BAGAYEV, I.S.; PENKINA, Ye.S.; DURNOVO, I.G.; KAFTANENKO, A.Ya.; LUK'YANOVA, G.N.; KOLESNIKOV, V.A.

Use of centralized vacuum evaporation cooling of a zinc electrolyte. TSvet. met. 38 no.6:33-39 Je '65. (MIRA 18:10)

KOLESNIKOV, Vladimir Aleksandrovich, starshiy prepodavatel'

Vibrational amplitude-type liquid density meter. Izv. vys. ucheb. zav.; elektromekh. 7 no.8:1023-1025 '64. (MIRA 17:10)

1. Kafedra energomekhanicheskogo oborudovaniya i avtomatiki Rostovskogo inzhenerno-stroitel'nogo instituta.

GRIBANOV, Yu.I.; KALUTSKAYA, K.D.; KOLESNIKOV, V.D.; SHOLOKHOV, A.A.

A stand for studying the transient operating conditions of a nuclear power system. Avtom.i telem.; sbor.st. no.3:5-15 '62. (MIRA 16:2)

(Nuclear reactors) (Electronic measurements)

KOLESNIKOV, V. D.

Welding in hard-to-reach places with the Psh-5 semi-automatic machine; experience of the Voroshilovgrad locomotive construction plant. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostr-it. lit ry, 1954. 6 p. (Obmen tekhnicheskim opytom) (55-28541)

TK 4660.M69

service. The tests were made with an independent grid-control circuit because in this case the frequency developed depends upon a separate generator and is independent of the operating conditions of the frequency-[illegible] the load circuit characteristics. The voltage [illegible] impulses required to ignite valves [illegible] some hundreds of volts are several tens of amperes. To obtain such impulses at frequencies between a few hundreds and some thousands of cycles per second, a grid-control

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A Valve for an Ionic Frequency-Changer SOV/110-59-1-4/28

circuit was made up consisting of an oscillator and a two-channel power amplifier based on hydrogen thyratrons type TGI-400. The oscillator frequency was produced by a symmetrical multi-vibrator. The tests established that when the mean value of the anode currents was greater than 20 - 30 A the auxiliary discharge of the ignitron was extinguished. In this particular case the best remedy was to strap the valve cathodes to give a 2-anode ignitron. Then the auxiliary discharge is maintained because the cathode current passes continuously throughout the entire positive half-cycle. Thus ignitrons type IVS-100/15000 were converted to 2-anode ignitrons type IPCh-1, and the tests were made on two valves of this type with different types of grids and filters. The same single-phase frequency-changer circuit was used for the tests. The anodes were supplied from a transformer of 1,130 kVA; the phase voltage could range from 400 - 4500 V. The time required to restore the control by the grids was determined at a voltage of 400 V. Determinations were made of the load frequency at which there were no conversion failures for at least 6 - 10 minutes. It was found that

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plotted as a function of cooling-water temperature for currents of 70 and 120 A in Fig 2. The curves are briefly discussed. The breakdown strength of the valves was determined with the circuit of Fig 1 and supply voltages up to 4500 V. At a voltage of 3000 V and a current of 130 A, rapid changes in the anode voltages at the instant of commutation caused severe overvoltages because of oscillation in the circuit. The oscillatory circuits contained the inductance of the anode resistances and the capacitance of the connecting cables. The consequent 5 - 7 fold overvoltages occasionally cause breakdown in

Card 3/5

A Valve for an Ionic Frequency-Changer SOV/110-59-1-4/28

both forward and reverse directions. This trouble was overcome by connecting an inductance of about 100 micro-Henries in series with the anodes. It was found that the valve could operate as a single-phase frequency-changer and also under regulated conditions at a voltage of 4500 V. The possibility of using igniter control is a further advantage of this type of valve, affording regulation of the output of the frequency-changer without having a complicated grid-control system. The valves operated with an r.m.s. inverse voltage of 4500 without breakdown and as the inverse voltage is four or five times the phase voltage, it is safe to assume a phase voltage of 1 kV. With a current of 300 A on three valves this gives a frequency-changer output of 350 kW. Operating experience with valves type IVS-100/15000 with inverse voltages up to 15 kV gives reason to suppose that valves type IPCh can

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A Valve for an Ionic Frequency-Changer SOV/110-59-1-4/28

operate reliably in a frequency-changer with a phase voltage of 2 - 3 kV and can be used for an installation with an output of 600 - 800 kW.
There are 2 figures and 1 Soviet reference.

SUBMITTED: July 25, 1958

Card 5/5

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S/089/60/009/003/001/014
B006/B063

AUTHORS: Kirillov, P. L., Kolesnikov, V. D., Kuznetsov, V. A., Turchin, N. M.

TITLE: Instruments for Measuring Pressure, Flow, and Level of Molten Alkaline Metals

PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 3, pp. 173 - 181

TEXT: The present article deals with problems of construction, design, and application of instruments for measuring pressure, flow, and level of molten alkaline metals. The instruments described here are designed for reactors with liquid-metal coolants. First of all, the authors describe pressure gauges. The simplest method is a connection to a separation tower which is filled with a noble gas (Fig. 1). This method has, however, several disadvantages. The zavod "Manometr" ("Manometr" Factory) developed an inductive pressure transmitter of the diaphragm-type MMC-4 (MMS-4), whose cross-sectional view is schematically shown in Fig. 2. The diaphragm is made of special steel. The range of application of these instruments extends to 10 atm and 450°C (sodium). The two-bellows sealed pressure

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gauge, made of 1X18H9T (1Kh18N9T) steel, which is shown in Fig. 3, is a simple and dependable instrument. The indication of this pressure gauge is linearly dependent on the ratio of the hardness of the bellows to their cross-sectional area. Fig. 4 gives the calibration of this pressure gauge as a function of A/F. For A/F = 1.25 kg/cm^3, e.g., the calibration scale is shifted by 2.5%. Fig. 5 shows the calibration straight lines of such pressure gauges for bellows of different hardness A (A/F = 10.7, 3.6, and 1.25 kg/cm^3). Formulas are given for the two components of the temperature error. Choke flow-meters with inductive differential diaphragm pressure gauges proved to be unsuitable for flow measurements on sodium. Magnetic flow-meters in which an electromotive force is measured are the simplest and most reliable. Fig. 6 reproduces a photograph of such an instrument designed for BP-5 (BR-5) reactors cooled with liquid sodium. The stability of this instrument largely depends on the material used for the magnet, which must retain its properties at high temperatures for a long time of operation. For this purpose, the authors used the alloy "Magnico", the induction of which as a function of temperature is shown in Fig. 7. Examination of the stability of three flow-meters of this type for one year

(mean sodium temperature: 400°C) showed that the induction in the pole gaps had decreased by 1% after one month; in the following months, it decreased by 0.5% and less. The results of measurement of the emf between the electrodes are given in tabular form. Fig. 8 schematically shows how the electrodes were welded to the tube. The indication of the flow-meter is slightly influenced by the contact resistance on the inner surface of the tube (cf. Fig. 9). Fig. 10 shows calibration curves at 10 and 200 m^3/hour of flow-meters on a BR-5 reactor. These curves are in good agreement with the theoretical characteristics. In the course of time, iron and nickel particles settle inside the tube at the places of the poles. Fig. 12 reproduces a photograph of the inside of such a tube after 1000 hours of operation (tube diameter: 27 mm). The deposits on the two sides have grown together in the center, and reduce the cross-sectional area of the tube considerably. The error in indication of the flow-meter is 12.5% in this case. Of the various level-meters, the authors first discuss those which are not well suited or even unsuited for reactor operation as, e.g., the YP-4 (UR-4) level-meter which operates without contact and by means of Co^{60} γ-emission, but is unsuited for measurements

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Instruments for Measuring Pressure, Flow, and Level of Molten Alkaline Metals

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on radioactive liquid metals. Furthermore, the authors describe the ultra-short wave level-meter and a potentiometer level-meter suggested by V. D. Kolesnikov. This instrument is schematically represented in Fig. 13. Its construction, especially that of the transmitter (Fig. 14), is described in detail. It has a linear scale, and was tested on a eutectic Na-K alloy at 200°, 300°, and 450°C. There are 14 figures, 1 table, and 4 references: 3 Soviet and 1 US.

SUBMITTED: March 22, 1960

Card 4/4

KOLESNIKOV, V.D., inzh.; STEKHIN, P.S., inzh.

Equipemtn for the automatic welding of air cylinders. Svar.proizv. no.6:32-35 Je '60. (MIRA 13:7)

1. Luganskiy teplovozostroitel'nyy zavod (for Kolesnikov). 2. Luganskiy vecherniy mashinostroitel'nyy institut (for Stekhin).
(Electric welding--Equipment and supplies)
(Cylinders--Welding)

STEKHIN, P.S., inzh.; KOLESNIKOV, V.D., inzh.

Assembly line automatic welding of locomotive frames. Svar. proizv. no.11:25-26 N '60. (MIRA 13:10)

1. Luganskiy vecherniy mashinostroitel'nyy institut (for Stekhin).
2. Luganskiy teplovozostroitel'nyy zavod (for Kolesnikov).
(Locomotives--Welding) (Assembly line methods)

KOLESNIKOV, V.D., inzh.

Using natural gas in oxygen cutting. Mashinostroenie no.3:70-73 My-Je '62. (MIRA 15:7)

1. Luganskiy teplovozostroitel'nyy zavod.
(Gas welding and cutting)

MASLENNIKOV, N.M., kand.tekhn.nauk; NADAL'YAK, N.Yu., inzh.; KOLESNIKOV, V.D., inzh.

A comparison of methods for measuring the voltage drop in the arc of mercury rectifiers. Vest. elektroprom. 33 no.11: 55-58 N '62. (MIRA 15:11)

(Mercury-arc rectifiers)

STEKHIN, P.S., inzh.; KOLESNIKOV, V.D., inzh.; SEVBO, P.I., kand. tekhn. nauk; retsenzent; SINGOYEVSKIY, K.V., red.; DEMKINA, N.F., tekhn. red.

[Mechanization and automation of the assembly and welding operations in the manufacture of diesel locomotives] Mekhanizatsiia i avtomatizatsiia sborochno-svarochnykh rabot v teplovozostroenii. Moskva, Mashgiz, 1963. 125 p. (MIRA 16:9)

(Diesel locomotives) (Welding) (Automation)

[illegible], V.G., [illegible], A.A.

[illegible]-stage bilateral pulmonary resection in tuberculosis. Probl. tub. no.1:31-35 '65. (MIRA 18:12)

1. Bashkirskiy respublikanskiy tsentr torakal'noy khirurgii na baze Ufimskogo protivotuberkuleznogo gospitalya (nachal'nik V.I. Terent'yev) invalidov Otechestvennoy voyny.

BEDILO, V.Ye.; KALINCHUK, I.G.; LISHBERGOV, V.D.; NIKOLAYEV, G.P.; TSOY, D.; SHCHUKINA, G.F. Prinimali uchastiye: KOLESHKOV, V.F.; OSTAPENKO, P.V.; SEDOVA, M.P.; TKACHEV, M.V. DUGIN, Ye.V., otv.red.; RABINKOVA, L.K., red.izd-va; KOROVENKOVA, Z.A., tekhn.red.; SABITOV, A., tekhn.red.

[Types of mine cross section] Tipovye secheniia gornykh vyrabotok. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu. Vol.6. [Cross section of mines lined with steel arches and anchor bolting for 1-, 2- and 3-ton railroad cars] Secheniia vyrabotok, zakreplennykh stal'noi arochnoi i shtangovoi krep'iu, dlia 1-, 2- i 3-tonnykh vagonetok. 1960. 503 p. (MIRA 13:12)

1. Khar'kov. Gosudarstvennyy proyektnyy institut Yuzhgiproshakht. (Mine timbering)

BEREZNYAK, M.M., kand. tekhn. nauk; VASIL'YEV, Ye.I., kand. tekhn. nauk; KALININ, A.V., inzh.; KOLESNIKOV, V.F., inzh.

Use of electronic computers in planning open pit mines. Izv. vys. ucheb. zav.; gor. zhur. 8 no.2:39-47 '65. (MIRA 18:5)

1. Kemerovskiy gornyy institut.

KOLESNIKOV, V.G.

MIKULINSKIY, Yevgeniy Aleksandrovich; KOLESNIKOV, V.G., red.; TIKHONOVA, Ye.A., tekhn.red.

[Prevention of ship collisions at sea] Preduprezhdenie stolknoveniĭ sudov v more. Moskva, Izd-vo "Morskoĭ transport," 1957. 140 p. (Collisions at sea) (MIRA 11:4)

ZAL'TSBERG, Layb Aronovich; AKIT, Robert Petrovich; KOLESNIKOV, V.G., spets. red.; RODIN, Ye.D., spetsred.; PETIN, M.I., red. izd-va; TIKHONOVA, Ye.A., tekhn. red.

[Ship handling; study manual for seamen] Sudovozhdenie; uchebnoe posobie dlia matrosov. Moskva, Izd-vo "Morskoi transport," 1958. 232 p. (MIRA 11:10)

(Navigation) (Ships)

KOLESNIKOV, V.G., inzh.; GRABARNIK, I.A., inzh.

New ship with a loading capacity of 10,000 tons. Sudostroenie 24 no.10:1-3 O '58.
(Freighters) (MIRA 11:12)

KOLESNIKOV, V.G.

Observations on the behavior of herring in the Norwegian Sea.
Trudy sov. Ikht. kom. no.10:83-94 '60. (MIRA 13:10)

1. Atlanticheskaya nauchno-promyslovaya perspektivnaya razvedka pri Baltiyskom nauchno-issledovatel'skom institut morskogo rybnogo khozyaystva i okeanografii-(BaltNIRO)
(Norwegian Sea--Herring)

VISHNEPOL'SKIY, S.A., kand. ekon. nauk; BAYEV, S.M., inzh. putey soobshcheniya; BONDARENKO, V.S.; RODIN, Ye.D.; CHUVLEV, V.P.; TURETSKIY, L.S.; SMIRNOV, G.S.; SHAPIROVSKIY, D.B.; OBERMEYSTER, A.M.; SINITSIN, M.T.; KOGAN, N.D.; PETRUCHIK, V.A.; GRUNIN, A.G.; KOLESNIKOV, V.G.; MARTIROSOV, A.Ye.; KROTKIY, I.B.[deceased]; ZENEVICH, G.B.; MEZENTSEV, G.A.; KOLOMOYTSEV, V.P., kand. tekhn. nauk; ZAMAKHOVSKAYA, A.G., kand. tekhn. nauk; MAKAL'SKIY, I.I., kand. ekon. nauk; MITROFANOV, V.F., kand. ekon. nauk; CHILIKIN, Ya.A.; BAKAYEV, V.G., doktor tekhn. nauk, red. Prinimali uchastiye: DZHAVAD, Yu.Kh., red.; GUBERMAN, R.L., kand. ekon. nauk, red.; RYABCHIKOV, P.A., red.; YAVLENSKIY, S.D., red.; BAYRASHEVSKIY, A.M., kand. tekhn. nauk, red.; POLYUSHKIN, V.A., red.; BALANDIN, G.I., red.; ZOTOV, D.K., red.; RYZHOV, V.Ye., red.; BOL'SHAKOV, A.N., red.; VUL'FSON, M.S., kand. ekon. nauk, red.; IMITRIYEV, V.I., kand. ekon. nauk, red.; ALEKSANDROV, L.A., red.; LAVRENOVA, N.B., tekhn. red.

[Transportation in the U.S.S.R.; marine transportation] Transport SSSR; morskoi transport. Moskva, Izd-vo "Morskoi transport," 1961. 759 p. (MIRA 15:2)

(Merchant marine)

KOLESNIKOV, V.G.; TORIN, Yu.A.; KHLYSTOV, N.Z.

Effect of oceanological conditions on the distribution of the yellowfin tuna. Trudy BaltNIRO no.7:31-33 '61. (MIRA 15:2)
(Atlantic Ocean--Tuna fish)

SAVIN, Nikolay Ivanovich; PUSTOVYY, P.V., inzh., retsenzent;

BASEVICH, V.V., inzh., retsenzent; KOLESNIKOV, V.G., inzh., red.; KSENOFONTOVA, Ye.F., red. izd-va; LAVRENOVA, N.B., tekhn. red.

[Planning marine passenger traffic]Planirovanie morskikh passazhirskikh perevozok. Moskva, Izd-vo "Morskoi transport," 1962. 201 p. (MIRA 15:10)
(Merchant marine--Passenger traffic)

KORYAKIN, Sergey Fedorovich, kand. ekon. nauk, dots.; BERNSHTEYN, Iosif L'vovich, kand. ekon. nauk, dots.; Prinimal uchastiye: ELLINSKIY, Yu.F., st. prep.; SHRABSHTEYN, Ye.A., dots., retsenzent; CHERKASOV-TSIBIZOV, A.A., st. prepod., retsenzent; MILYUKOV, M.A., st. prepod., retsenzent; MOZHAROV, N.D., kand. ekon. nauk, retsenzent; MAKAL'SKIY, I.I., kand. ekon. nauk, retsenzent; KREMER, B.A., inzh., retsenzent; PETRUCHIK, V.A., kand. ekon. nauk, red.; GUBERMAN R.L., kand. ekon. nauk, red.; RODIN, Ye.D., kand. ekon. nauk, red.; DUBCHAK, V.Kh., inzh., red.; MARTIROSOV, A.Ye., inzh., red.; PALYUSHKIN, V.A., inzh., red.; BELOV, M.I., doktor geogr. nauk, red.; SINITSYN, M.T., inzh., red.; KOLESNIKOV, V.G., kand. tekhn. nauk, red.; ZAMAKHOVSKIYA, A.G., kand. ekon. nauk, red.; KUZ'MIN, T.P., inzh., red.; NEMCHIKOV, V.I., kand. tekhn. nauk, red.; GEKHTBARG, Ye.A., inzh., red.; FILIPPOV, K.D., red.; KRUGLOVA, Ye.M., red.

[Economics of the merchant marine] Ekonomika morskogo transporta. Izd.2., perer. i dop. Moskva, Transport, 1964. 527 p. (MIRA 18:1)

KOLESNIKOV, V. I., Cand Tech Sci -- (diss) "On the problem of drainage undertakings ~~operations~~ for tea plantations on the Kolkhidskaya Plain." Tbilisi, 1958. 18 pp with diagrams (Min of Agriculture USSR, Georgian Order of ~~Lenin~~ Labor Red Banner Agr Inst), 100 copies (KL, 16-58, 120)

38903
S/181/62/004/006/007/051
B125/B104

26.2532

AUTHORS: Palatnik, L. S., Koshkin, V. M., Gal'chinetskiy, L. P., Kolesnikov, V. I., and Komnik, Yu. F.

TITLE: Some properties of semiconducting compounds of the type $A_2^I B^{IV} X_3^{VI}$

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1430 - 1431

TEXT: This paper deals with the conductivity and thermo-emf of compounds with the general formula $A_2^I B^{IV} X_3^{VI}$ (A^I = Cu, B^{IV} = Ge or Sn, X^{VI} = S, Se, or Te). Most of these compounds have covalent bonds. Samples were molten in evacuated quartz ampoules and purified by zone refining in 12 to 16 operations. Compounds based on sulfur and selenium can be purified by zone refining more easily than compounds based on tellurium. The values of the conductivity σ ($ohm^{-1}cm^{-1}$) and of the thermo-emf α ($\mu v/deg$) at room temperature are as follows:

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Some properties of semiconducting...

σ	Cu_2GeS_3	Cu_2GeSe_3	Cu_2GeTe_3	Cu_2SnS_3	Cu_2SnSe_3	Cu_2SnTe_3
σ	1.9	50	$1.4 \cdot 10^3$	0.49	91	$1.4 \cdot 10^4$
α	100-300	70-100	10	100-600	250	30

From the Hall constant R and from σ one finds u = 1870 $cm^2/v \cdot sec$ and $N = 1.7 \cdot 10^{17}$ cm^{-3} for Cu_2GeSe_3, and u = 400 $cm^2/v \cdot sec$ and $N = 1.4 \cdot 10^{18}$ cm^{-3} for Cu_2SnSe_3 (u = mobility of the majority carriers, N = their concentration). The electrical conductivity of the compounds increases with decreasing strength of the chemical bonds. log σ of the groups $Cu_2GeX_3^{IV}$ and $Cu_2SnX_3^{VI}$ is an almost linear function of the lattice constant a. Substitution of the anions affects the thermo-emf considerably. The compounds have a diamond-type lattice. There is 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy institut osnovnoy khimii, Khar'kov
(Scientific Research Institute of Basic Chemistry, Khar'kov)

Some properties of semiconducting...

S/181/62/004/006/007/051
B125/B104

SUBMITTED: December 22, 1961

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KOLESNIKOV, V. M.

Stanki i instrument, no. 10, 1962, p. 44

S/121/62/000/010/005/005
D040/D112

Dissertations

The following dissertations for the degree of Cand. of Technical Sci. were presented:
Electric Motors in Unstabilized Motion Periods"; V.M. Kolesnikov, at the All-Union "Order of the Red Banner of Labor" NII of Electromechanics, "Investigation of a Pulse Drive With a Step-by-Step Motor and Development of Its Elements"; S.N. Korchak, at the Moskovskiy stankoinstrumental'nyy institut (Moscow Institute of Machine Tools and Instruments), "Investigation of the Machinability of Steels in Grinding by Wheels Having Different Properties"; Ye.P. Mikityuk, at the Kiyevskiy ordena Lenina politekhnicheskiy institut (Kiyev "Order of Lenin" Polytechnic Institute), "Investigation of the Effect of Partial Bimetallization on the Wear Resistance of Cast Iron Friction Couples"; N.K. Ostroumov, at the Moskovskoye ordena Trudovogo Krasnogo Znameni vyssheye tekhnicheskoye uchilishche im. N.E. Baumana (Moscow "Order of the Red Banner of Labor" Higher Technical School im. N.E. Bauman), "Investigation of the Automatics of Mechanical Copying in Machine Tools with Coordinate Cams and Elastic (Flexible) Links"; B.G. Tamm, at the Nauchno-issledovatel'skiy tekhnologicheskiy institut (Technological Scientific Research Institute), "Methods of Automatically Programming the Calculation of Initial Data for Program Control Systems";

Card 2/3

KOLESNIKOV, V.M., inzhener.

Experience erecting an administrative building in Kiev. Nov.tekh. i pered. op. v stroi. 18 no.7:18-22 Jl '56. (MLRA 9:9)
(Kiev--Reinforced concrete construction)

KOLESNIKOV, V.M.

Experimental investigation of the bearing capacity of stretched steel rods reinforced under load. Nauch.dokl.vys.shkoly; stroi. no.2:157-162 '59. (MIRA 13:4)

1. Rekomendovana kafedroy metallicheskikh konstruktsiy Leningradskogo inzhenerno-stroitel'nogo instituta.
(Strains and stresses) (Building, Iron and steel)

KOLESNIKOV, V. M.

PHASE I BOOK EXPLOITATION SOV/5186

Akademiya nauk SSSR. Tsentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov

Problemy elektricheskoy obrabotki materialov (Problems of the Electrical Machining of Materials) Moscow, Izd-vo AN SSSR, 1960. 247 p. Errata slip inserted. 4,200 copies printed. (Series: Its: Trudy)

Sponsoring Agency: Akademiya nauk SSSR. Resp. Ed.: B. R. Lazarenko; Ed. of Publishing House: M. L. Podgoyetskiy; Tech. Ed.: S. P. Golub'.

PURPOSE: This collection of articles is intended for scientists and technicians concerned with the investigation of new ways of applying electrical energy.

COVERAGE: The book contains articles on studies carried out by the staff of the Tsentral'naya nauchno-issledovatel'skaya

Problems of the Electrical (Cont.) SOV/5186

laboratoriya elektricheskoy obrabotki materialov Akademii nauk SSSR (TsNIL-ELEKTROM AN SSSR) (Central Scientific Research Laboratory for the Electrical Machining of Materials of the AS USSR) in searching for new applications of electrical energy. The results of these studies include: the dimensional machining of dielectrics and the utilization of electric pulsed discharges in carrying out certain chemical reactions, new information on processes occurring on electrodes and in the interelectrode space during short pulsing, and some new data on the technological processes in metal machining by electric current pulses. Much attention is paid to the analysis of the operation of power-supply sources used in the electrical machining and arc welding of metals. No personalities are mentioned. References accompany most

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AVAILABLE: Library of Congress

Card 6/6

JF/dfk/ec
5-25-61

S/196/61/000/010/033/037
E194/E155

AUTHORS: Adoyan, A.G., and Kolesnikov, V.M.

TITLE: An investigation of transient processes in impulse generators of R, L, C spark machining equipment

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.10, 1961, 42, abstract 10K 242. (Symposium "Problems of electrical machining of materials", M., AS USSR, 1960, 215-220)

TEXT: In selecting the optimum parameters (R, L, C) of the main electrical circuit of equipment with relaxation generators, allowance should be made for the component of current from the power source in the total current of the spark discharge. This is of vital influence in the process of formation of electrical impulses by the generator. It is obvious that at the end of the discharge there is in the generator a certain critical (instantaneous) value of this current component, and if it is exceeded the impulses will break down and there will be steady arc discharge. From the investigation, equations are derived

Card 1/2

KOLESNIKOV, V.M., inzh.

Efficient circuits for the excitation of rectifiers. Elek. i tepl. tiaga 4 no. 9:27-29 S '60. (MIRA 13:12)
(Electric railroads--Substations) (Electric current rectifiers)

KOLESNIKOV, V.M., inzh. (Moskva)

Full-wave rectification with zero anodes and its application for the excitation of excitrons. Elektrichestvo no.9:42-45 S '60. (MIRA 13:10)

(Electric current rectifiers)

KOLESNIKOV, V.M. (Moskva)

Study of a thyratron pulse converter with a step-by-step motor [with summary in English]. Avtom. i telem. 22 no.5:630-640 My '61. (MIRA 14:6)

(Servomechanisms)

KOLESNIKOV, V.M. (Moskva)

Study of nonstationary processes in a pulse system with a stepping motor. Avtom.i telem. 22 no.7:896-906 Jl '61. (MIRA 14:6)
(Automatic control) (Pulse techniques (Electronics))

33033 R
S/105/60/000/009/00[illegible]/009/XX
B116/B206

9,2540 (1020, 1331, 1482)

AUTHOR: Kolesnikov, V. M., Engineer (Moscow)

TITLE: Full-wave rectification with "zero anodes" and its use for excitron tube excitation

PERIODICAL: Elektrichestvo, no. 9, 1960, 42-45

TEXT: Excitron tubes are widely used at present in industry and electric railroads. An interruption of the auxiliary discharge even for 0.001 sec or a reduction of the cathode-spot current below the critical value leads to trouble. The present procedures for its elimination are unreliable and cause high losses in electric power. A completely new full-wave rectification with "zero anodes", elaborated by the author, is given here. It does not show any of the shortcomings indicated and warrants high efficiency and a high power factor. The circuits given here are used at present in transformer sub-stations of electric railroads for the excitation of excitron tubes (Ref. footnote on p. 42: V. M. Kolesnikov, "Ustroystvo dlya vozbuzhdeniya i zazhiganiya ekzitronov", Authors certificate no. 115627 of October 23, 1957). In general, if one (Fig. 1) and two (Fig. 2) consumers

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Full-wave rectification with ...

are supplied, the parallel circuit consists of a transformer with two secondary windings, the valves B and a cathode choke L_d with two windings. The circuits operate in the following way: After connection of the transformer, the anode B_2 is assumed to have the highest positive potential with relation to the cathode. In this case, the current i_2 flows through B_2, drops after having reached its highest value and induces an emf in the coil L_d, under the effect of which the current i_1 appears in the circuit of the anode B_1. Almost simultaneously, the current i_3 appears under the effect of the emf of the secondary transformer winding (this is displaced by 180° with reference to that of the primary winding). After the drop of i_2 to zero, i_1 and i_3 flow through the loads. Owing to mutual induction between the choke windings, i_1 and i_3 are compensated and will show the same form and value for certain parameters of the circuit. While i_3 is reduced, i_4, appears and so forth. Thus, currents will flow in all valves during the commutation intervals, and the current is led either through the valves B_1

Full-wave rectification with ...

and B_3 or B_2 and B_4 outside these intervals. The current I_d flows through the cathode choke windings and the load. It pulsates only slightly, which is very important for the cathode-spot stability. Fig. 4 shows the series circuit of a full-wave rectification. It has 2 zero anodes and 2 potential anodes, the mode of operation of which can be seen in the figure. In the new circuits the inverse voltage jumps between cathode and anode after extinction of the valve are absent, besides the double reduction of the inverse voltage. This and the presence of joint cathodes form the main advantages of these circuits. Moreover, the power factor of the transformer is much better for these circuits. Fig. 7 shows the ignition- and excitation circuit of the PMHB- (RMNV-) excitron tube. This circuit is based on the parallel circuit with zero anodes described here. It consists of the ignition transformer and the excitation transformer TB, the cathode (compensation) choke YP, the excitation contactor K of the valves, the coils 3 of the ignitor and the pulse contactor KM. The ignition process takes place in the following way: after connecting the transformer, the ignitor is excited by the current and the mercury bridge, closes for a moment the ignitor-cathode circuit. If this circuit is interrupted, an arc develops

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Full-wave rectification with ...

which passes then to one of the anodes. At the occurrence of the ignition arc at the moment when a positive charge exists at anode 2, the arc is picked up by this anode. Reversely, the arc is picked up by anode 1 under the effect of the emf induced in the cathode-choke winding at the disappearance of the ignition current. The further succession of the currents at the anodes takes place analogously. The successive passage of the ignitor current through the choke warrants exact conformance in time of the ignition-arc appearance and the discharge (of the energy stored in the choke) over anode 1. This warrants uninterrupted excitation of the excitron tube independent of fluctuations in the mains supply and the rectifier state. Theoretical calculations and endurance tests showed that the necessary installed output of the compensation choke almost equals the output of the choke in the full-wave rectification circuit. It is pointed out that in the manner described here, any mercury-vapor rectifier in industry can be excited without high cost. There are 7 figures, 1 table, and 1 Soviet-bloc reference.

SUBMITTED: September 11, 1959

Card 4/8 4/

KOLESNIKOV, V.M., inzh.

Standards for designing steel elements strengthened under loading. Prom.stroi. no.10:46-50 '62. (MIRA 15:12)

1. Trest Promstroy, g. Penza.
(Steel, Structural)

S/121/62/000/007/004/006
D040/D113

AUTHOR: Kolesnikov, V.M.

TITLE: Technological characteristics of a blocking generator in high-frequency spark erosion of hard alloys

PERIODICAL: Stanki i instrument, no. 7, 1962, 34

TEXT: The design and operational principles of a blocking generator, used as an electropulse generator, are described. Such generators have been previously described (Ya.S. Itskhoki, Impul'snyye ustroystva [Pulse generators] , M., 1959). The generator (Fig. 1) consists of a rectifier, a ГУ-80 (GU-80) oscillation tube with control circuits, and a pulse transformer. The rectifier has a Larionov circuit with ВГ-129 (VG-129) phanotrons. Three parallel-connected НТМК6 (NTMK-6) high-voltage transformers are used for the rectifier. Rectified voltage can be varied from 0 to 45 kv. Tests were conducted in eroding "45" steel and ВК30 (VK30) carbide; the pulse duration was varied between a few μsec and several dozen μsec, and

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S/103/62/023/007/008/009
D201/D308

16,8000

AUTHOR: Kolesnikov, V. M. (Moscow)

TITLE: Analysis of electro-mechanical processes in a pulse drive with a step-by-step motor

PERIODICAL: Avtomatika i telemekhanika, v. 23, no. 7, 1962, 956-970

TEXT: The purpose of the analysis is to determine the character of motion of the system and its dynamic characteristics, taking into account the electromagnetic processes in the converter and amplification of the current pulses. The analyzed system has either a three-phase or a three-stator step-by-step motor. The analysis of the motor operation is considered from the point of view of its electromagnetic moment, its average moment at which the rotor falls out of synchronism, and from the point of view of the effect of current fluctuations on the instantaneous value of the electromagnetic moment. The analysis is based on the

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Analysis of... S/103/62/023/007/008/009
D201/D308

author's previous work. Finally, the starting, stopping, and falling out of synchronism of the motor are discussed. Formulas are derived for the critical speed of the rotor before stopping and the minimum critical duration of the current pulse which is required for given system parameters to produce the first step and synchronism of the rotor. The derived formulas make it possible, with an accuracy sufficient in practice, to determine the critical frequencies at the start and switching-off of the motor. There are 9 figures.

SUBMITTED: April 20, 1961

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KOLESNIKOV, V.M.

Engineering characteristics of blocking oscillators used in high-frequency electric-spark cutting of hard alloys. Stan.i instr. 33 no.7:34 Jl '62. (MIRA 15:7)
(Electric cutting) (Oscillators, Electron-tube)

KOLESNIKOV, V.M. (Moskva)

Study of electromechanical processes in a pulse-type drive with a step-by-step motor. Avtom. i telem. 23 no.7:956-970 Jl '62. (MIRA 15:9)

(Electric motors) (Automatic control)

KOLESNIKOV, V.M., inzh.; GUSEV, N.I., inzh.

Industrial construction practices in Penza. Prom. stroi. 41 no.8: 28-29 Ag '64. (MIRA 17:11)

1. Trest Promstroy.

KOLESNIKOV, V.N.

Soaking dry shreds. Leg. prom. 18 no.3:41-42 Mr '58. (MIRA 11:4)
(Hides and skins)

KHAZANOV, V. S., kand. tekhn. nauk; SHMIDT, A. M., inzh.;
KOLESNIKOV, V. N., insh.

System for determining the electrical and light parameters of fluorescent lamps during their manufacture. Svetotekhnika 8 no.9:14-16 S '62. (MIRA 15:10)

1. Vsesoyuznyy svetotekhnicheskiy institut.

(Fluorescent lamps)

KIPNIS, B.Ya.; KOLESNIKOV, V.N.; LERNER, D.V.; MINAYEV, S.M.; PANOVA, A.V.; LIFSHITS, I.D., kand. tekhn. nauk, retsenzent; MIKHAYLOV, V.A., inzh., red.; PLEMYANNIKOV, M.N., red.; BATYREVA, G.G., tekhn. red.

[Handbook on the manufacture of artificial leather] Spravochnik po proizvodstvu iskusstvennoi kozhi. Moskva, Gizlegprom. Vol.1. 1963. 523 p. (MIRA 16:12)
(Leather, Artificial)

ALEKSEYENKO, Vladimir Iosifovich; KOLESNIKOV, Vladimir Nikitich; SAFRAY, Boris Aleksandrovich; KHROMOVA, Nina Sergeyevna; PAVLOV, S.A., prof., nauchnyy red.; KATS, A.S., inzh., nauchnyy red.; GUSEVA, A.I., red.; BATYREVA, G.G., tekhn. red.

[Design and planning of new and reorganized factories for artificial (rubber-type) leather] Proektirovanie novykh i rekonstruiruemykh predpriiatii iskusstvennoi kozhi (tipa reziny). Moskva, Izd-vo nauchno-tekhn.lit-ry RSFSR, 1961. 102 p. (MIRA 15:3)

(Rubber goods industry)

KOLESNIKOV, V.N.

51-6-2/26

AUTHORS: Kolesnikov, V.N. and Pokhil'ko, L.G.

TITLE: On the Problem of Measurement of Na Atom Densities in the Column of an Arc Discharge. (K voprosu ob izmerenii kontsentratsii atomov Na v stolbe dugovogo razryada.)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.II, Nr.6, pp. 689-694 (USSR)

ABSTRACT: N.A. Prilezhayeva has put forward a method for determination of the density of easily ionised impurity atoms in an isothermal plasma (Ref.1). This method was further developed by O.P. Semenova (Ref.2) and V.S. Mel'chenko (Ref.3). The density is deduced from the measurement of intensities of 2 spectral lines. The authors of the present paper discuss both theoretical and practical aspects of the above method. They show that for reliable results one must determine accurately the mean degree of ionisation of the plasma. Absolute values of the probabilities of transitions and plasma temperature should also be known accurately. The

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Kolesnikov V.N.

24(7) PHASE I BOOK EXPLOITATION SOV/1700

Lvov. Universitet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii, 1956. t. II: Atomnaya spektroskopiya (Materials of the 10th All-Union Conference on Spectroscopy, 1956. Vol 2: Atomic Spectroscopy) [Lvov] Izd-vo L'vovskogo univ., 1958. 568 p. (Series: Its: Fizicheskiy sbornik, vyp. 4(9)) 3,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii.

Editorial Board: G.S. Landsberg, Academician, (Resp. Ed.); B.S. Neporent, Doctor of Physical and Mathematical Sciences; I.L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; V.A. Fabrikant, Doctor of Physical and Mathematical Sciences; V.G. Koritskiy, Candidate of Technical Sciences; S.M. Rayskiy, Candidate of Physical and Technical Sciences; L.K. Klimovskaya, Candidate of Physical and Mathematical Sciences; V.S. Miliyanchuk (Deceased), Doctor of Physical and Mathematical Sciences; A.Ye. Glauberman, Doctor of Physical and Mathematical Sciences; Ed.: S.L. Gazer; Tech. Ed.: T.V. Saranyuk.

PURPOSE: This book is intended for scientists and researchers in the field of spectroscopy, as well as for technical personnel using spectrum analysis in various industries.

COVERAGE: This volume contains 177 scientific and technical studies of atomic spectrography presented at the 10th All-Union Conference on Spectroscopy in 1956. The studies were carried out by members of scientific and technical institutes and include extensive bibliographies of Soviet and other sources. The studies cover many phases of spectroscopy: spectra of rare earths, electromagnetic radiation, physicochemical methods for controlling uranium production, physics and technology of gas discharge, optics and spectroscopy, abnormal dispersion in metal vapors, spectroscopy and the combustion theory, spectrum analysis of ores and minerals, photographic methods for quantitative spectrum analysis of metals and alloys, spectral determination of the hydrogen content of metals by means of isotopes, tables, and atlases of spectral lines, spark spectrographic analysis, statistical study of variation in the parameters of calibration curves, determination of traces of metals, spectrum analysis in metallurgy, thermochemistry in metallurgy, and principles and practice of spectrochemical analysis.

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Materials of the 10th All-Union Conference (Cont.) SOV/1700

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53-65-1-1/10

AUTHORS: Kolesnikov, V. N., Leskov, L. V.

TITLE: Optical Transition Probabilities for Atoms and Diatomic Molecules (Veroyatnosti opticheskikh perekhodov dlya atomov i dvukhatomnykh molekul)

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol. 65, Nr 1, pp. 3 - 38 (USSR)

ABSTRACT: The purpose of the present paper was to contribute to the investigation of the gaseous state, this contribution covering, describing and discussing parts of these problems as thoroughly as possible. Thus, the authors gave a comprehensive survey of the range of problems concerning transition probabilities, endeavoring to take into consideration every publication published in all states since 1932, dealing with this field. After a short introduction the optical transition probabilities for atoms are first discussed, viz. the theoretical works starting from the fundamental publications by Kondon and Shortli (Ref 1), Hartree (Khartri) (Ref 2), Bethe (Bete) and Salpeter (Ref 12), Fook (Fok') (Ref 18), further

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Optical Transition Probabilities for Atoms and Diatomic Molecules

(Refs 13 - 17), as well as the experimental ones (Rozhdestvenskiy, Ref 47; Kvater, Refs 49, 50; Bersuker, Ref 51, and others). Further the authors discuss the transition probabilities for electrons in diatomic molecules, again a survey being given first of the theoretical and later on the experimental publications in this field. The most valuable part of this paper consists of four tables extending over 14 pages and containing results from about 300 different publications, being well arranged alphabetically according to elements. All tables contain in a separate column the number of the refexence from which the respective information is taken. Table 1 contains data on the configuration and the transitions, respectively for the following elements: nitrogen (N I - N V), aluminum (Al I - VIII), argon (II - XIV), barium I and II, beryllium (I - IV), boron (I - V), vanadium II and VIII, hydrogen, helium I and II, europium II, iron (I - XV), cadmium I, potassium (I - VI), calcium (I - XV), oxygen (I - VI), silicon (I - VIII), krypton III, xenon III, lithium (I - III), magnesium (I - X), manganese I, V, X, copper I, sodium (I - VI), neon (I - X), nickel (I - XVI), mercury I, rubidium I, sulfur (I - III), scandium (I - VII), strontium I, and II, thallium

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53-65-1-1/10

Optical Transition Probabilities for Atoms and Diatomic Molecules

I, titanium II and VII, carbon (I - VI), phosphorus (I - III), fluorine (II - V), chlorine (II - IV), chromium I, IV, IX, cesium I and zinc I. Table II contains the numbers of the investigated lines for approximately the same elements, for the valences I and II only, however, the respective wavelengths (in Å), as well as the investigation methods. Tables III and IV contain data on the electron transitions for diverse diatomic molecules. There are 4 tables and 37o references, 83 of which are Soviet.

1. Perturbation theory--Mathematical analysis

Card 3/3

24(3)

AUTHORS: Yegorov, V. N., Kolesnikov, V. N., Sobolev, N. N. SOV/20-121-3-12/47

TITLE: Concerning the Problem of the Nature of the Arc Discharge in an Atmosphere of Inert Gases (K voprosu o prirode dugovogo zaryada v atmosfere inertnykh gazov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 121, Nr 3, pp 440-442, (USSR)

ABSTRACT: The authors began their investigations with a direct current arc which burned between 2 pure carbon electrodes at a current of 4 amperes in atmospheres of helium and argon with an admixture of hydrogen and neon. The pressure of those gas atmospheres was equal to normal atmospheric pressure. The authors measured the absolute and relative intensities of 3 hydrogen lines (H_α, H_β, H_γ), 8 helium lines, and 14 neon lines for which the transition probabilities are known. Also the distribution of the intensities of these lines with respect to the radius of the arc column were investigated. A diagram shows the values of $\lg(N_i/g_i)$ found for a mixture of 95 % He, 5 % Ne, 0,01 % H_2; for pure helium with an admixture of ~0,01 % H_2 and for technical helium (~98 % He, ~1 % H_2). N denotes the

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degree of occupation of the level and g its statistic weight. In all these cases, the degree of occupation of the hydrogen and helium levels was practically not changed. The experimentally found points agree well with straight lines. These straight lines intersect the ordinate at a point which corresponds to a pressure of the order of magnitude of 10^{10} atmospheres. The inclination of the obtained straight lines (for excited levels) coincide for all the investigated atoms and correspond to a temperature of $\sim 3{,}5 \cdot 10^3$ °K. Naturally, there is practically no thermal excitation of the inert gases and of hydrogen. Therefore, the distribution of the atoms H, He, and Ne with respect to the excited levels does not satisfy the Boltzmann (Bol'tsman) law, and the mechanism of the atom excitation is not a thermal one. The second diagram demonstrates the distribution of the hydrogen lines, of the helium line $\lambda = 5876$ Å, and of the C_2 band $\lambda = 5165$ Å. A characteristic peculiarity of these phenomena is the simultaneous excitation of the helium lines (excitation energy ~ 23 eV) and of the C_2 bands

Concerning the Problem of the Nature of the Arc Discharge in an Atmosphere of Inert Gases

(dissociation energy 5,6 eV) in the center of the arc. In the center of the arc also the molecular bands CN, CH, and H_2 are excited in a rather intensive manner. According to all the above-mentioned measurements, the half-width of the hydrogen lines was less than 2 - 3 Å. This is an argument in favor of a low concentration of the ions (electrons) in the discharge and, therefore, of a low temperature of the gas. All the above-mentioned facts lead to the following conclusion: In a low-current column burning between carbon electrodes at a normal pressure in an atmosphere of inert gases, there is no thermal equilibrium. Metal atoms introduced into the discharge may lead nearer towards the equilibrium. There are 2 figures and 6 references, 2 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev, AS USSR)

PRESENTED: April 2, by D. V. Skobel'tsyn, Academician

AUTHORS: Kolesnikov, V.N. and Sobolev, N.N. SOV/109-4-8-11/35

TITLE: Some Properties of an Arc Discharge in an Atmosphere of Inert Gases

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 8, pp 1286 - 1288 (USSR)

ABSTRACT: During the investigation of a low-pressure arc discharge between pure-carbon electrodes in an atmosphere of helium or argon with admixtures of hydrogen and neon, it was found by the authors (Ref 1) that the levels of the atoms of hydrogen, helium and neon have temperatures of the order of 10 000 ^{o}K. It was found, also, by means of the so-called "transverse pictures" that apart from the atoms of He, Ar, Ne, the molecules of H_2, C_2, CH and CN are also excited. From this, it was concluded that there is no thermal equilibrium in the column of the investigated arc (Ref 1). The effect can be explained by the following hypothesis. Since the electric field in the column of the arc is small and the pressure is high, so that the collision frequency is also high, it can be expected that the electrons, atoms, ions and molecules

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Some Properties of an Arc Discharge in an Atmosphere of Inert Gases

obey the Maxwellian velocity distribution. Secondly, the gas contains small quantities of atoms of H, C, N and molecules of H_2, CH, C_2 and CN ; these components very strongly absorb the resonance radiation of helium and argon and are ionised. Thirdly, a portion of atoms during the recombination is excited, the overall number of the excited atoms being dependent on the effectiveness of the photo ionisation. The measured excitation temperature should therefore be near to the kinetic temperature. Now, by introducing various metal vapours into the discharge, it should be possible to change radically the conditions in the discharge. This assumption was checked experimentally by preparing the electrodes which were "saturated" with barium and lithium salts mixed with carbon powder. The arc discharge was produced in an atmosphere of argon or helium with an admixture of hydrogen at a current of 5-8 A. The investigation by means of "the transverse pictures" showed that, provided the concentration of metals was sufficient, the radiation of

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18.8100

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AUTHORS: Palatnik, L.S., Konovalov, O.M., Gladkikh, N.T. and Kolesnikov, V. N.

TITLE: Investigation of the Three-Component Semiconductor Compound $PbBiSe_2$

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.5, pp.677-680

TEXT: In investigating Pb-Bi-Se alloys of variable composition the authors discovered that the $PbBiSe_2$ compound has semiconductor properties. The Pb-Bi-Se alloys were produced by simultaneous evaporation and condensation of the components onto a glass base in a vacuum chamber (about 5×10^{-5} mm Hg). The temperature of the glass base varied between 20 and 120°C. Thus, specimens of variable composition were produced which were in a highly non-equilibrium state and also in a state approaching the equilibrium one. The investigations included measuring the thermo e.m.f. and also X-ray phase analysis. It was found that for a content of 28-44% Pb and 24-32% Se a sharp rise takes place in the thermo e.m.f. (to 300 μV/deg). X-ray investigations showed for this range lines

of a phase not hitherto known to exist in the investigated binary systems. The maximum thermo e.m.f. are obtained for alloys condensed onto a base at the temperatures 20 and 120°C. From the results it is concluded that the compound $PbBiSe_2$ forms and it was considered probable that this compound has semiconducting properties. Therefore, massive specimens of $PbBiSe_2$ compounds were investigated. These were produced from a charge corresponding to the stoichiometric composition except for the selenium where an additional quantity had to be added to ensure equilibrium pressure of the selenium vapours in the free volume of the ampoule at 1100°C. The charge was placed into a quartz ampoule which was evacuated and sealed after heating for two hours at 100°C. The thus produced compound was purified by zonal refining. The obtained $PbBiSe_2$ specimens had a tetragonal lattice with the parameters a = 5.26 Å, c = 3.84 Å. The temperature dependence of the electric resistance is plotted in Fig.3 (a - prior to zonal purification, during heating; b - same, during cooling; β - after zonal purification, during heating). Fig.4 shows the volt/ampere characteristic for a point contact (I,mA vs. U,V). Fig.5 shows the dependence

Investigation of the Three-Component.. S/126/61/011/005/003/015
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of the thermo e.m.f., E,mV/°C, on the distance along the length of the ingot, mm (a - prior to zonal purification, β - after zonal purification). It can be seen that $PbBiSe_2$ is a semiconducting compound. The specimens produced by the authors had an n-type conductivity and a rectification coefficient of 1000 to 1500. It was found that $PbBiSe_2$ can be purified by zonal recrystallization; the structure of the compound did not change as a result of multiple zonal recrystallization. There are 5 figures, 1 table and 4 references: 3 Soviet and 1 English language reference: (Ref.3, Shockley, W. "Electrons and holes in semiconductors", Russian translation, 1953).

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet imeni A. M. Gor'kogo (Khar'kov State University imeni A. M. Gor'kiy)

SUBMITTED: July 27, 1960

41325

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B125/B186

24.2311

AUTHORS: Kitayeva, V. F., Kolesnikov, V. N., Obukhov-Denison, V. V., and Sobolev, N. N.

TITLE: Structure of the positive column of an arc discharge in argon. I. The local electrical characteristics of the column

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 9, 1962, 1084 - 1089

TEXT: The field strength and the radial distribution of the concentration of charged particles are determined from the contour of the hydrogen line H_β, and the radial distribution of temperature is measured for a non-equilibrium plasma (i = 4a) and for an equilibrium plasma (i = 10 - 200a) in an arc discharge in a hydrogen-argon mixture (Ar $\gtrsim$94.0%, $H_2 \sim 5\%$, N, O and C impurities). The volt-ampere characteristics (Fig. 2) are shifted if there is a change in the diameter and material of the cathode, the hydrogen concentration, or the velocity of the gas flow. The general shape of the characteristics is practically independent of these quantities.

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The dashed line shows the extrapolated sum of anode and cathode drops. The descending branch is due to the change in amperage of the column, and the ascending one to the increase of anode and cathode voltage drops. The field strength is practically constant at $i \gtrsim 50a$. The radial distributions of the concentration N_e of charged particles (Fig. 3) and of the current density $j(r) = \sigma(r)E$ (Fig. 4) in the column are calculated from the exact formulas of the kinetic theory for the plasma conductivity σ. The concentration of charged particles and the column radius increase with increasing amperage. There is no indication of a pinch effect in air at these amperages. The amperages calculated from $j(r)$ in a partially ionized equilibrium plasma agree well with the amperages measured. The formulas here given for σ in plasma hold as long as the Boltzmann equation is applicable to the plasma. The applicability of these formulas for concentrations of $N_{ion} \lesssim 10^{15}$ cm^{-3} cannot be established yet, from lack of experimental data. There are 4 figures and 1 table.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva, Moskva (Physics Institute imeni P. N. Lebedev, Moscow)

Structure of the positive...

SUBMITTED: July 27, 1961 (initially)
January 29, 1962 (after revision)

Fig. 2. Volt-ampere characteristics. (1) Diameter of the cathode 2 mm, of the anode 6 mm; (2) diameter of the cathode 6 mm, of the anode 12 mm.

Fig. 3. Radial distributions of the concentration of charged particles in the column of the arc. (1) 200a; (2) 40a; (3) 10a; (4) 4a.

Fig. 4. Radial distributions of the current density in the column of the arc. Designations as in Fig. 3.

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Structure of the positive...

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Fig. 2

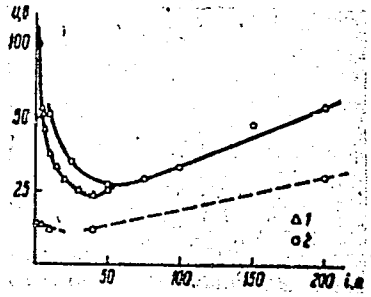


Fig. 3

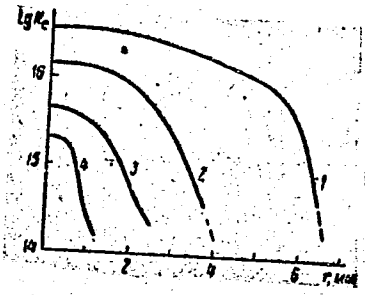
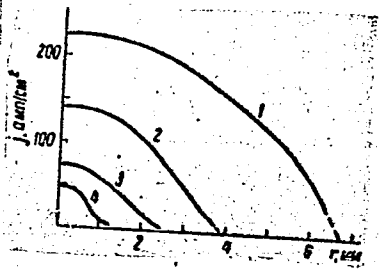


Fig. 4



Card 4/4

41326

S/057/62/032/009/009/014
B125/B186

26.2311

AUTHORS: Kolesnikov, V. N., and Sobolev, N. N.

TITLE: Structure of the positive column of an arc discharge in argon. II. The radius of the positive column and the form of radial distributions

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 9, 1962, 1090 - 1094

TEXT: The present paper is a continuation of that by V. F. Kitayeva et al. (ZhTF, v. 32, no. 9, 1962, 1084 - 1089). The electrical conductivity has its maximum (σ_{max}) in the center of the positive column, and decreases by 50% at $r = r_{0.5}$; $\sigma(r_{0.5}) = 0.5 \cdot \sigma_{max}$. The radial distribution $\sigma(r)$ in the positive column of an arc discharge in an argon-hydrogen mixture is well approximated by $\sigma(r) = \exp\left[-(r/r_{0.5})^6 \ln 2\right]$. It is independent of the amperage and of the hydrogen concentration. This approximate function does not make it more difficult to solve the heat conduction equation $(1/r)(d/dr)\left[\varkappa(r) r dT/dr\right] = -q(r)$, which is valid if all energy losses are due to thermal conductivity. $\varkappa(r)$ is the thermal conductivity and

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$q(r) = 0.24\sigma(r)E^2$ is the density of heat sources. Under these conditions, the amperage is calculated from formula

$$I = 2\pi r_{0.5}^2 \cdot \sigma_{max} E \cdot \int_0^{R_0} \sigma_{rel.}(R)\, R dR = 2\pi r_{0.5}^2 \sigma_{max} E \cdot I_1 \quad (3)$$

with the constant integral

$$I = \int_0^{R_0} \exp(-R^2 \ln 2)\, R dR = \frac{1}{e(\ln 2)^{\frac{2}{e}}} \gamma\left(R_0, \frac{2}{e}\right) \quad (4),$$

and the radial dictribution $\varkappa(R)$ of the thermal conductivity and $T(R)$ of the temperature from

$$\varkappa(R) = -\frac{iE}{10} \cdot \frac{\gamma\left(R, \frac{2}{e}\right)}{R\frac{dT}{dR}} \quad (7) \text{ and } \quad T(R) = T_{max} - \frac{iE}{10} \cdot \int_0^R \frac{\gamma\left(\rho, \frac{2}{e}\right)}{\rho\varkappa(\rho)} d\rho. \quad (8).$$

Maximum current density occurs in a homogeneous conductor of the radius $1.1 \cdot r_{0.5}$. The standard distribution $\sigma_{rel}(R) = \sigma(r)/\sigma_{max}$ does not contain any uncertain parameters. It would be very desirable to check the validity of the present formulas for arc discharges in air and other molecular gases with

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S/056/62/042/004/012/037
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AUTHORS: Kolesnikov, V. N., Obukhov-Denisov, V. V.

TITLE: Scattering cross section of slow electrons from hydrogen atoms

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 4, 1962, 1001-1009

TEXT: Earlier determinations of cross sections for the scattering of slow electrons (E ~ 1 ev) by hydrogen atoms from conductivity measurements (H. Maecker et. al. Zs. Phys. 140, 119 1955; H. W. Drawin, Zs. Phys. 146, 295, 1956) have yielded much too high values as compared with results from crossed beam experiments and theoretical values. It is suggested that this discrepancy is caused by the adoption of a too simple approximation for the electrical conductivity of a plasma. An improved conductivity formula is derived from Ginzburg and Gurevich's solution of Boltzmann's transport equation for a plasma in a homogeneous electric field. Using this formula,

$$\langle Q \rangle = \frac{1}{6}\left(\frac{m}{kT}\right)^3 \int_0^\infty q_{tr}(v) v^5 \exp\left(-\frac{mv^2}{2kT}\right) dv \qquad (1)$$

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Scattering cross section of...

the results of conductivity measurements at 7 different hydrogen concentrations in argon were evaluated. The cross section for the elastic scattering of 0.7 ev electrons from hydrogen atoms was found to equal 65 ± 20 atomic units. This value is much nearer to the crossed beam and theoretical results than the values derived from former conductivity experiments. Possible sources of error in the proposed method are discussed. There are 3 figures, and 1 table.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: November 23, 1961

Card 2/2

KOLESNIKOV, V. N.; SOBOLEV, N. N.

1

"The Establishment of the Thermal Equilibrium for D.C. Arc Plasma in Inert Gases."

report submitted to 11th Intl Spectroscopy Colloq, Belgrade, 30 Sep-4 Oct 63.

KOLESNIKOV, V.N.; SOBOLEV, N.N.

"The establishment of the thermal equilibrium for D.C. Arc Plasma in inert gases."

Report presented at the Spectroscopicum, 11th Intl. Colloq., Belgrade, Yug, 30 Sep - 4 Oct 63.

GRIDNA, V.P., mlad. nauchn. sotr., starshiy bibliograf; RAYZER, M.D., kand. fiz.-mat. nauk; KOLESNIKOV, V.N., kand. fiz.-matem. nauk; ANTROPOV, Ye.T., ml. nauchn. sotr.; SHPIGEL', I.S., kand. tekhn. nauk, otv. red.; KOVRIZHNYKH, L.M., kand. fiz.-matem. nauk, otv. red.

[Plasma physics; bibliographic index, 1955-1961] Fizika plazmy; bibliograficheskii ukazatel', 1955-1961. Moskva, Nauka, 1964. 354 p. (MIRA 17:11)

1. Moscow. Fizicheskiy institut. Biblioteka.

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SSION NR: AR5017427

ODE: MM ENCL: 0

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ACCESSION NR: AT5009877 [illegible] /000/0066/0157

...kov, V. N.

...scharge in inert gases

... Fizicheskiy institut. ... Fiz... ...kaya optika,

... discharge, plasma equilibrium, inert ... population, atomic ... density, gas temperature

... is a dissertation report, describing ... investigation of plasma in the column of ... discharge, aimed ... rate explanation of the role of such ... as the composition of ... and electron density in processes occurring when the plasma goes ... equilibrium state. The current ranged from ... to ...

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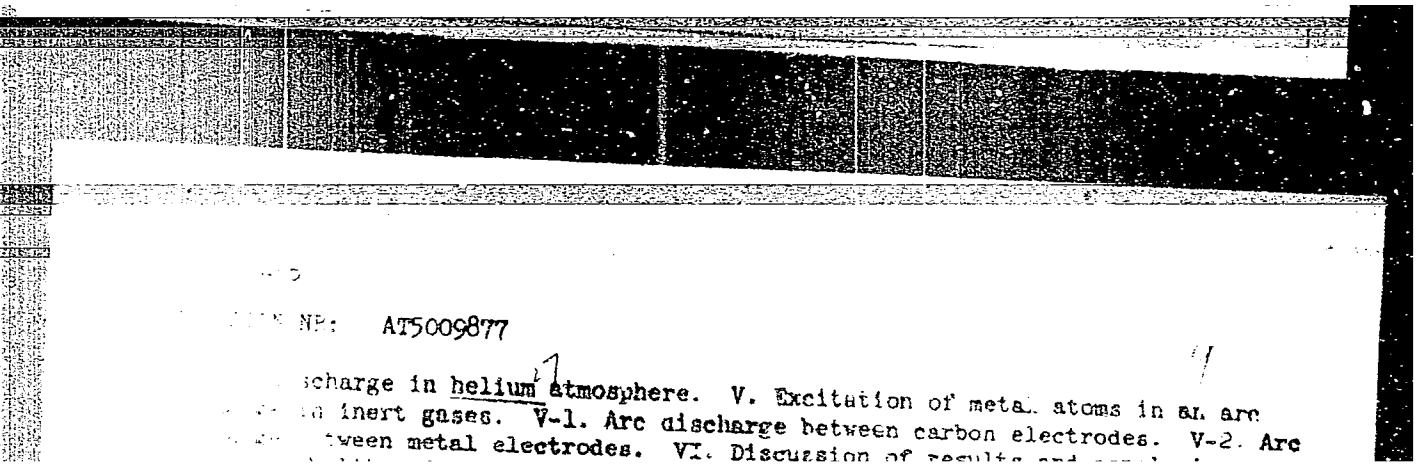
...ions of the excited levels of the atoms H, He, Ne, and Ar, the relative ...f the populations in the atoms Li, Cu, BaI, and BaII, the gas temperature ...electron temperature. Special attention ...



NR: AT5009877

scharge in helium atmosphere. V. Excitation of meta. atoms in an arc
in inert gases. V-1. Arc discharge between carbon electrodes. V-2. Arc
tween metal electrodes. VI. Discussion of results and